



24th Annual Pollution Prevention Conference and Tradeshow

# Urban, Industrial, and Community Forestry Actions for Pollution Control



# Helping companies help nature

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WHC works at the intersection of business and biodiversity using a model that is focused on implementation, community engagement and supply chain.

## **Every act of conservation matters.®**

Empowering all acts of conservation is at the core of WHC members' work, whether it's a simple pollinator garden or a complex wetlands restoration.

## **Building collaborations for conservation.**

WHC partners with corporations, agencies and community members to recognize and encourage biodiversity projects for conservation, education and recreation.

## **Helping companies further corporate goals.**

WHC conservation programs advance member companies' biodiversity, sustainability, employee engagement and community relations goals.

## **Uniquely qualified.**

WHC is the only conservation organization to work exclusively with corporations to establish, enhance, maintain and protect biodiversity.

## **Global impact.**

Since 1988, WHC has recognized more than 1,000 conservation programs worldwide through WHC Conservation Certification®, the only voluntary sustainability standard designed for broad-based biodiversity enhancement on corporate landholdings.





## EXTRACTION



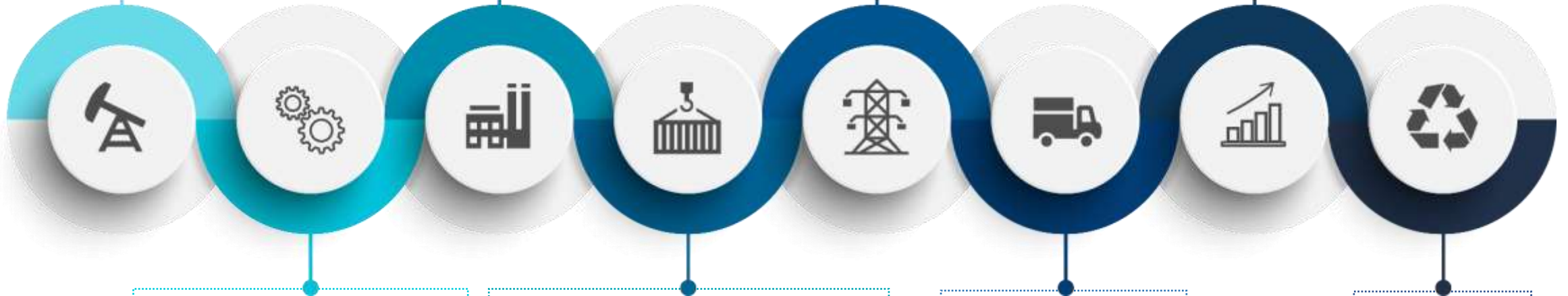
## MANUFACTURING



## ENERGY



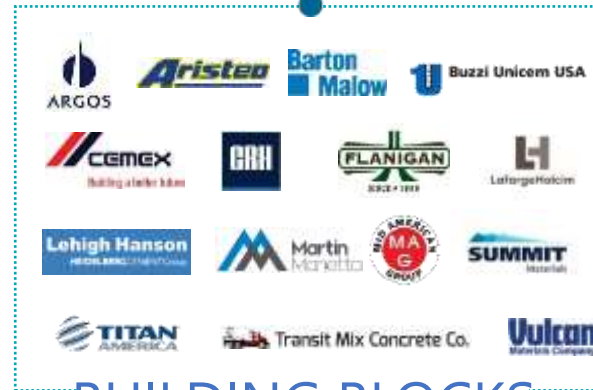
## SERVICES



## PROCESSING



## BUILDING BLOCKS



## DISTRIBUTION



## WASTE



# C-Suite 16

## The Business Case for Conservation



### Operations

Conservation stewardship activities can support a safer, compliant operating environment.

01

BIODIVERSITY IMPACTS

02

REMEDATION REMEDIES

03

PERMIT ACQUISITION AND RENEWAL

04

SOCIAL LICENSE TO OPERATE

05

SUPPLY CHAIN MANAGEMENT

### Corporate Citizenship

Nature-based programs and conservation efforts can benefit a variety of corporate citizenship targets.

06

COMMUNITY ENGAGEMENT

07

INVESTMENT IN EDUCATION

08

TALENT ACQUISITION

09

SUSTAINABILITY GOALS AND PERFORMANCE

10

REPORTING AND DISCLOSURES

11

SRI AND SHAREHOLDERS

### Business Management

Conservation can contribute to business management targets with positive bottom line outcomes.

12

EMPLOYEE ENGAGEMENT

13

CLIMATE CHANGE

14

LANDS MANAGEMENT

15

NATURE-BASED SOLUTIONS

16

GOVERNMENT RELATIONS

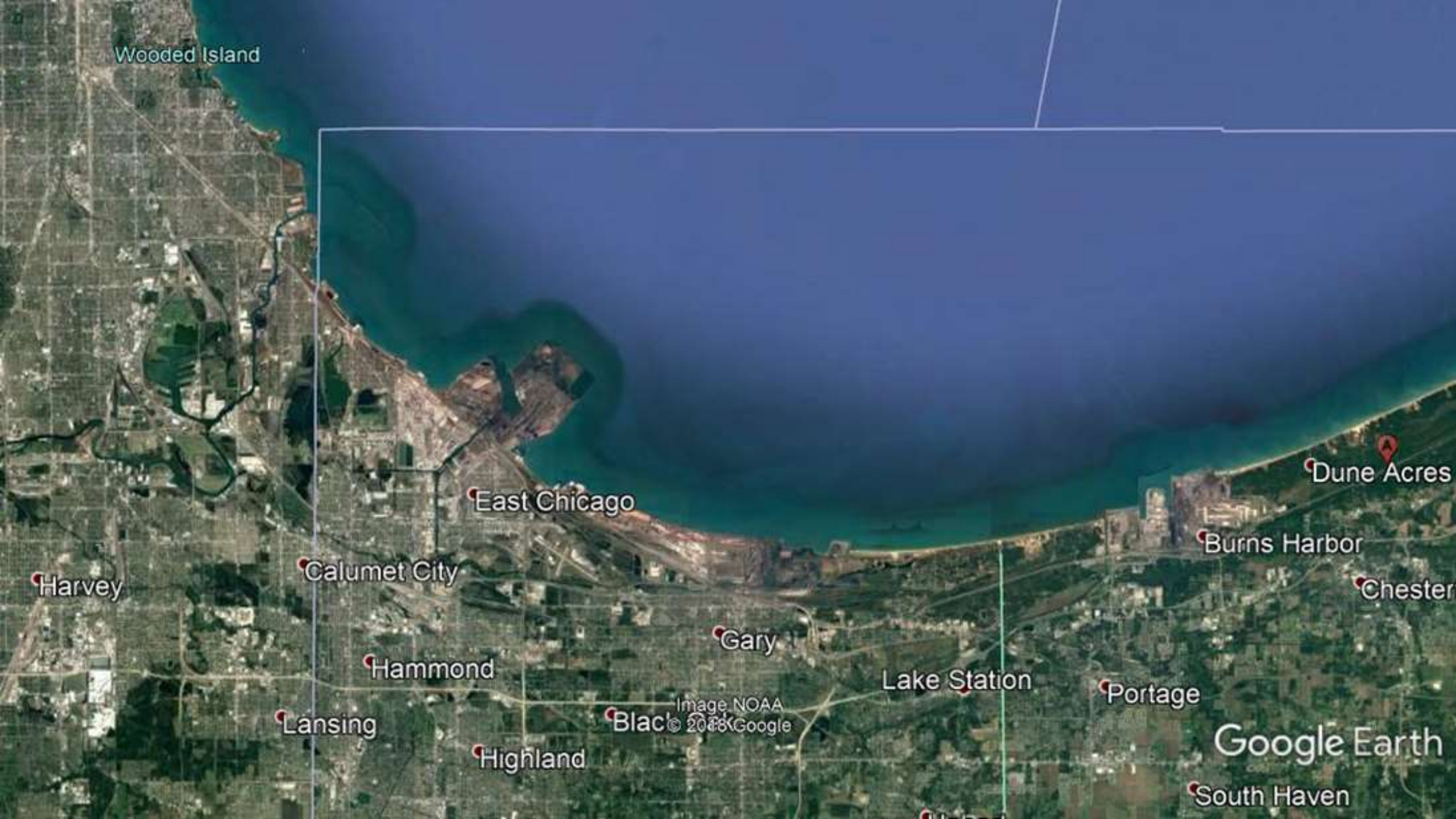


## UCF = Pollution Prevention and Control

- Advocate nature-based solutions to reduce air and water pollution
- Share experiences from an Urban and Community Forestry collaborative in Coastal Indiana and Illinois: **CommuniTree**
- Expand your toolbox of P2 solutions to include ecological/nature-based options
- Solicit your ideas and participation in expanding UCF P2 actions at source and in the community







Wooded Island

East Chicago

Calumet City

Harvey

Hammond

Lansing

Highland

Gary

Black Oak

Lake Station

Portage

Burns Harbor

Chester

Dune Acres

South Haven

Image NOAA  
© 2018 Google

Google Earth

# National, Regional, and Local Scales



- **WHC Conservation Certifications**
- **2021 USEPA Source Reduction Assistance Grant Program**  
**NATURE-BASED SOLUTIONS FOR POLLUTION PREVENTION IN THE US AUTOMOTIVE SUPPLY CHAIN**
- **2020 Urban and Community Forestry Challenge Grant Program:** Urban Forest Resiliency Innovation with the National Ten Year Urban and Community Forestry Action Plan (2016-2026)
- **US Forest Service Great Lakes Restoration Initiatives** UCF to reduce stormwater runoff and air pollution and increase industrial and corporate participation



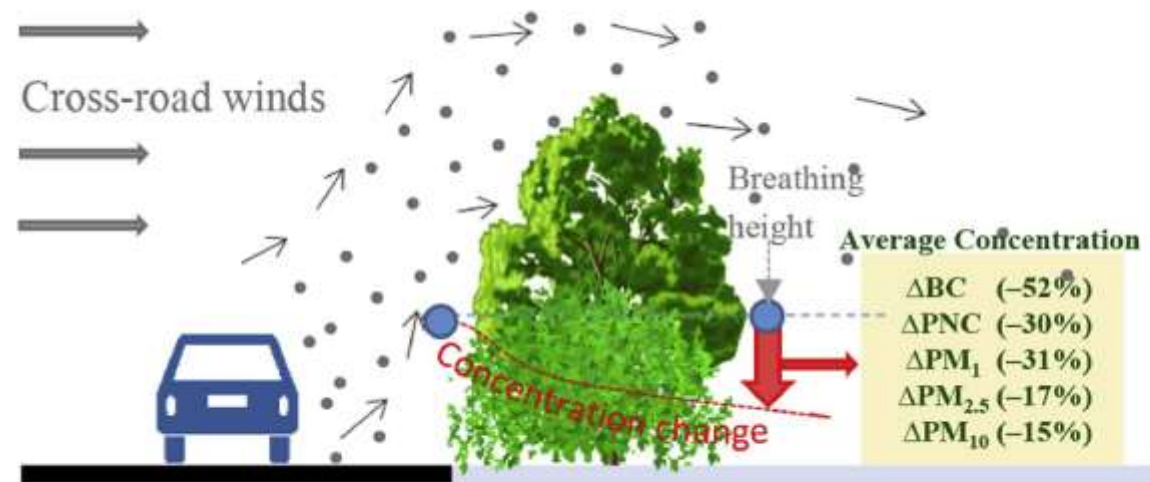
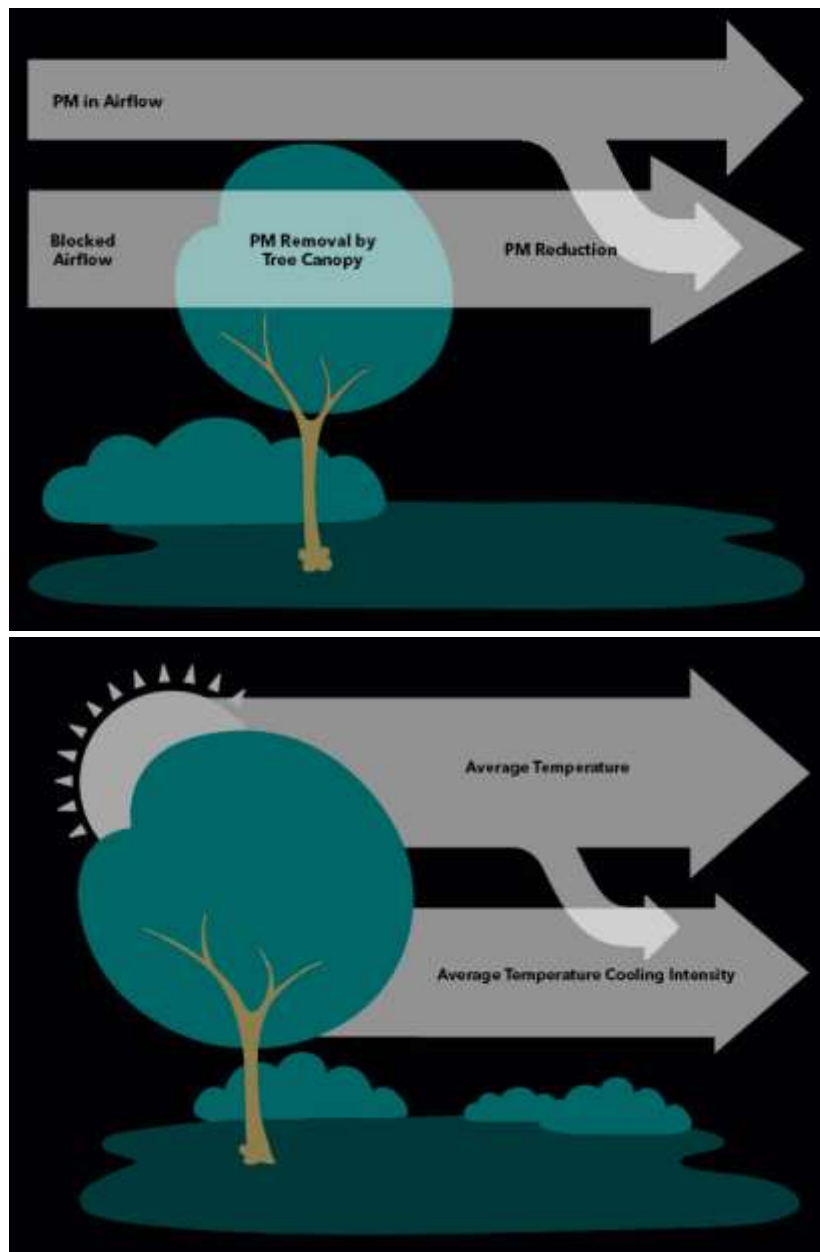
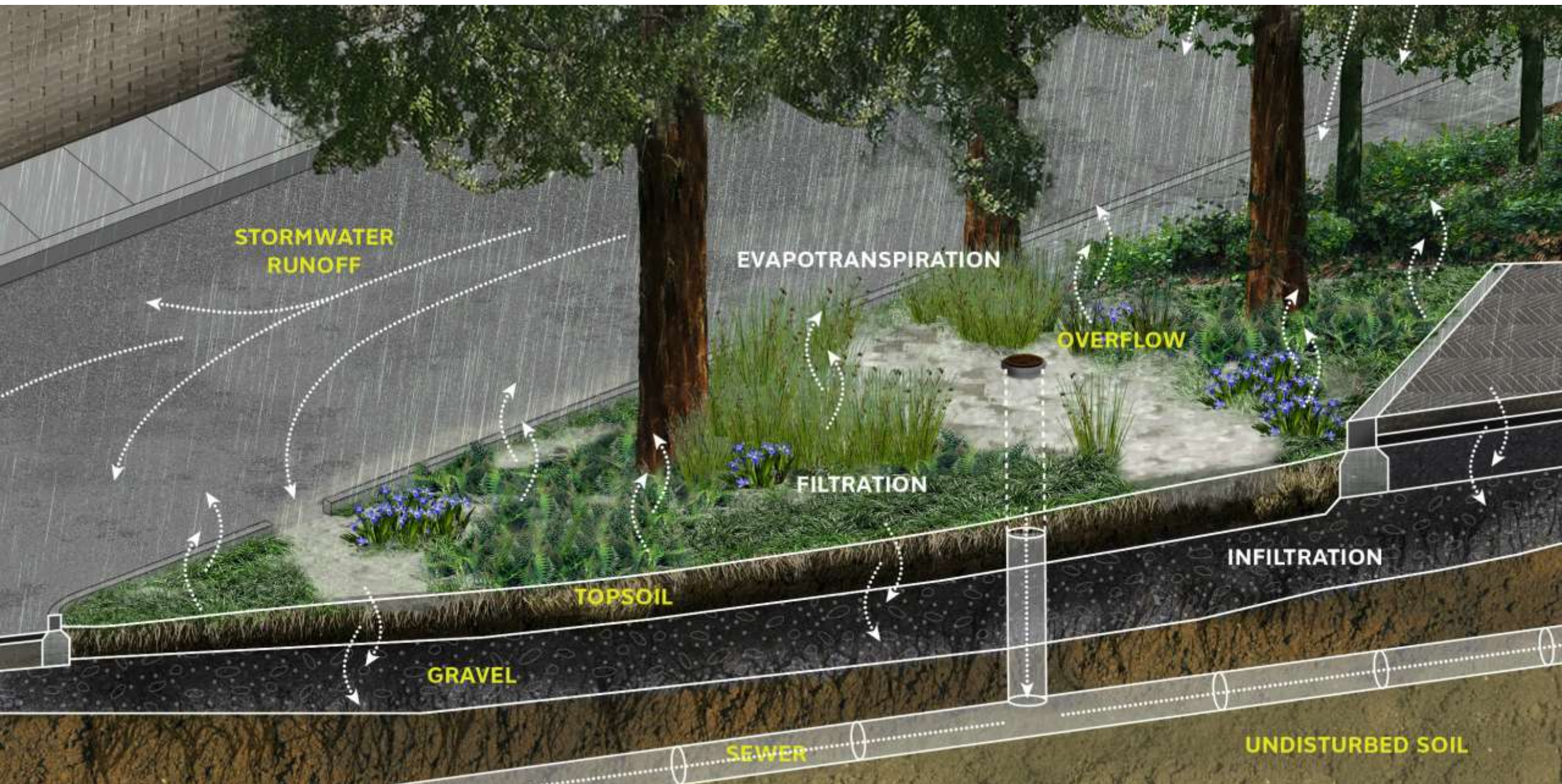


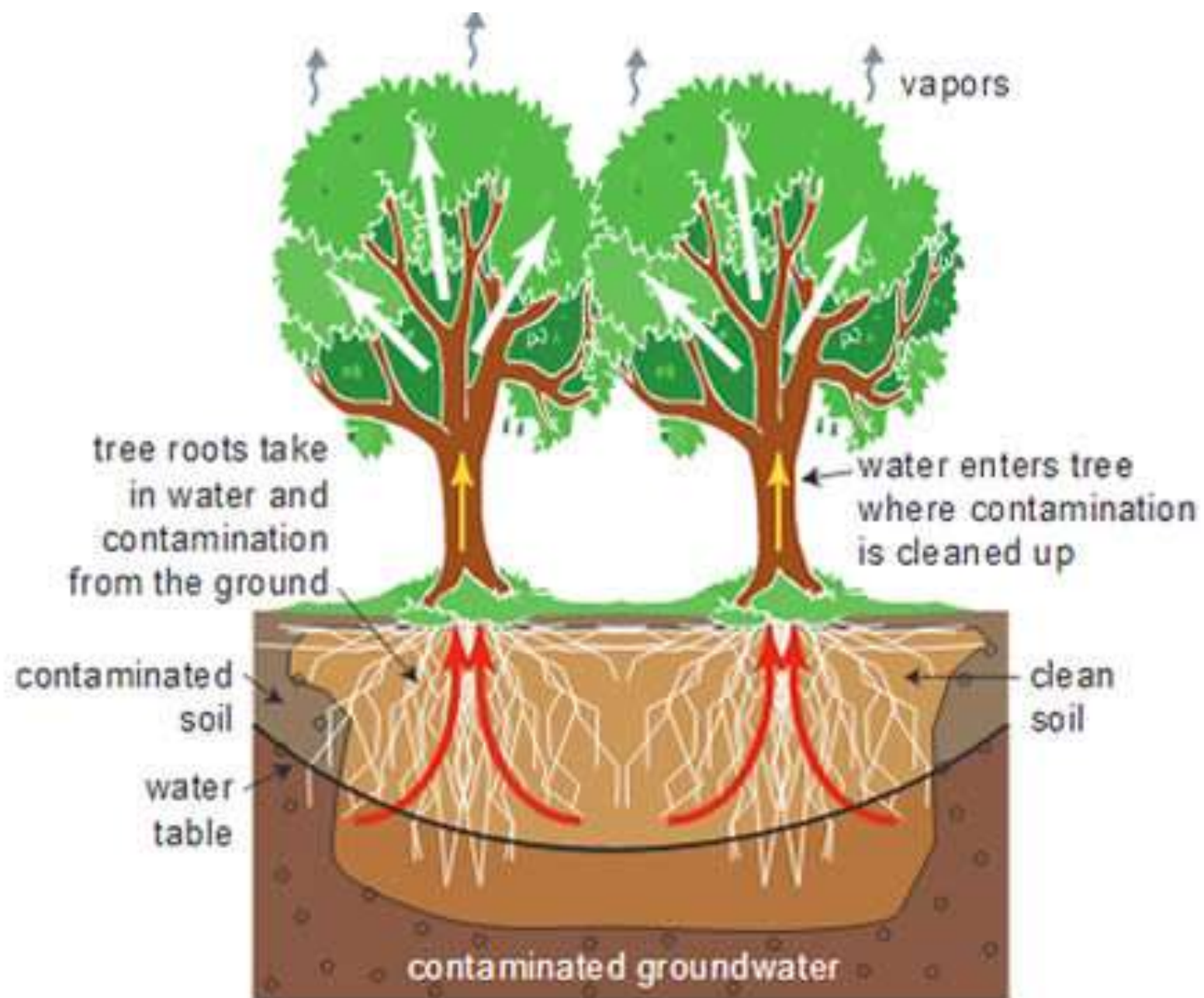
Figure 1: Percentage reduction in pollutant concentrations by using PCSs (Abhijith and Kumar, 2019).  
[www.iscapeproject.eu/](http://www.iscapeproject.eu/)

<https://storymaps.arcgis.com/stories/708e395ca43a4da491afaf5fa1462d30>





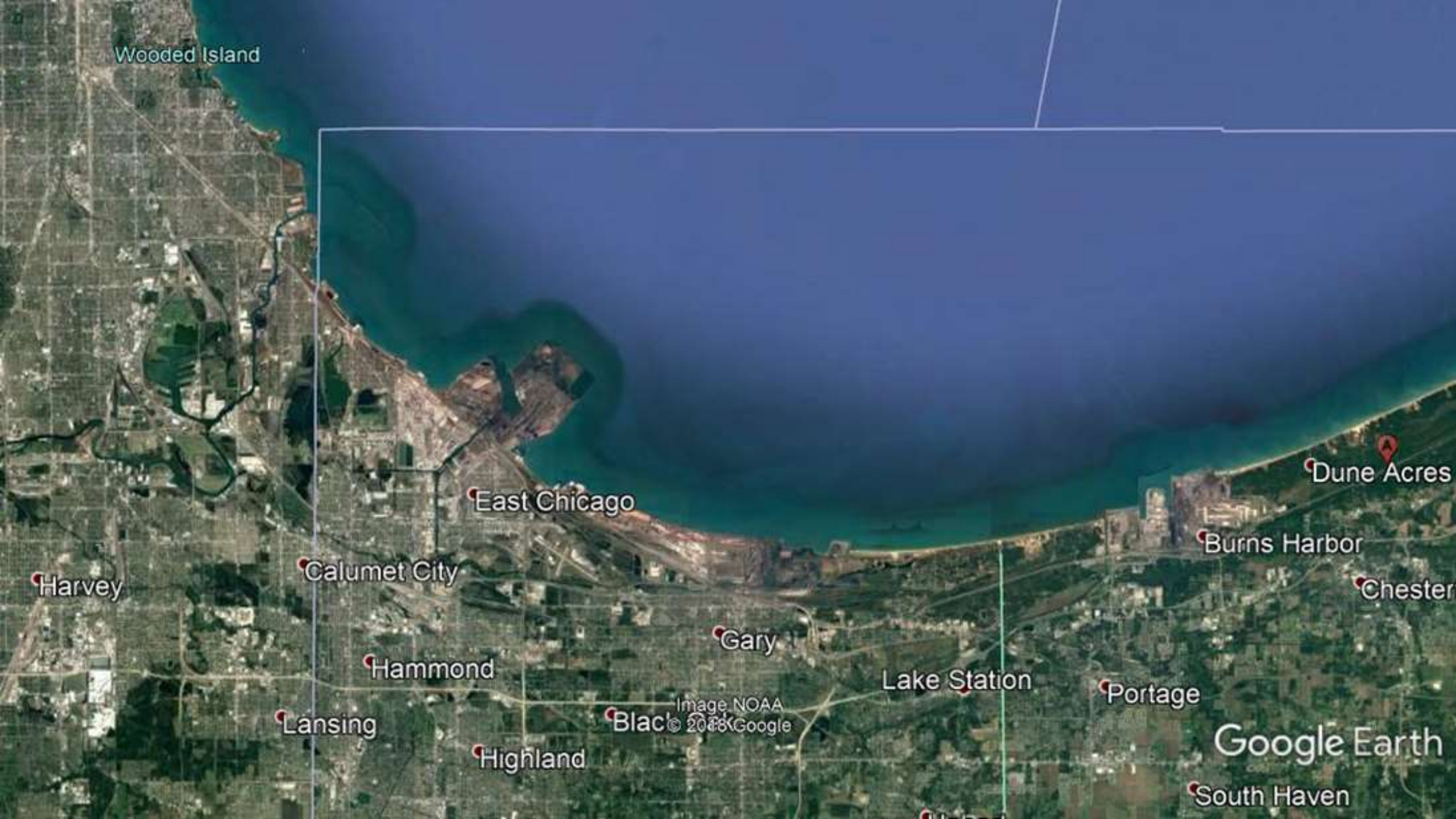












Wooded Island

East Chicago

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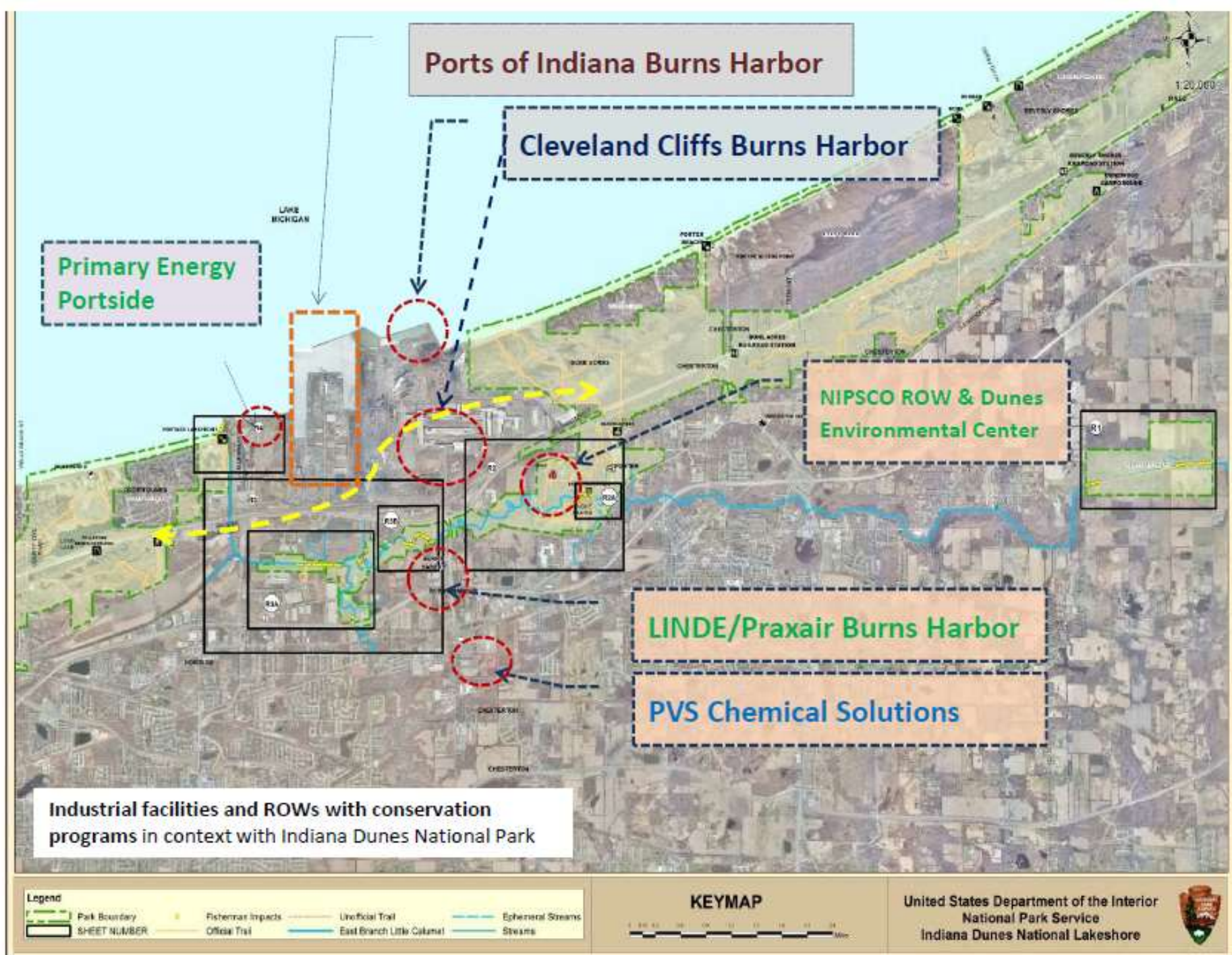
Chester

Google Earth

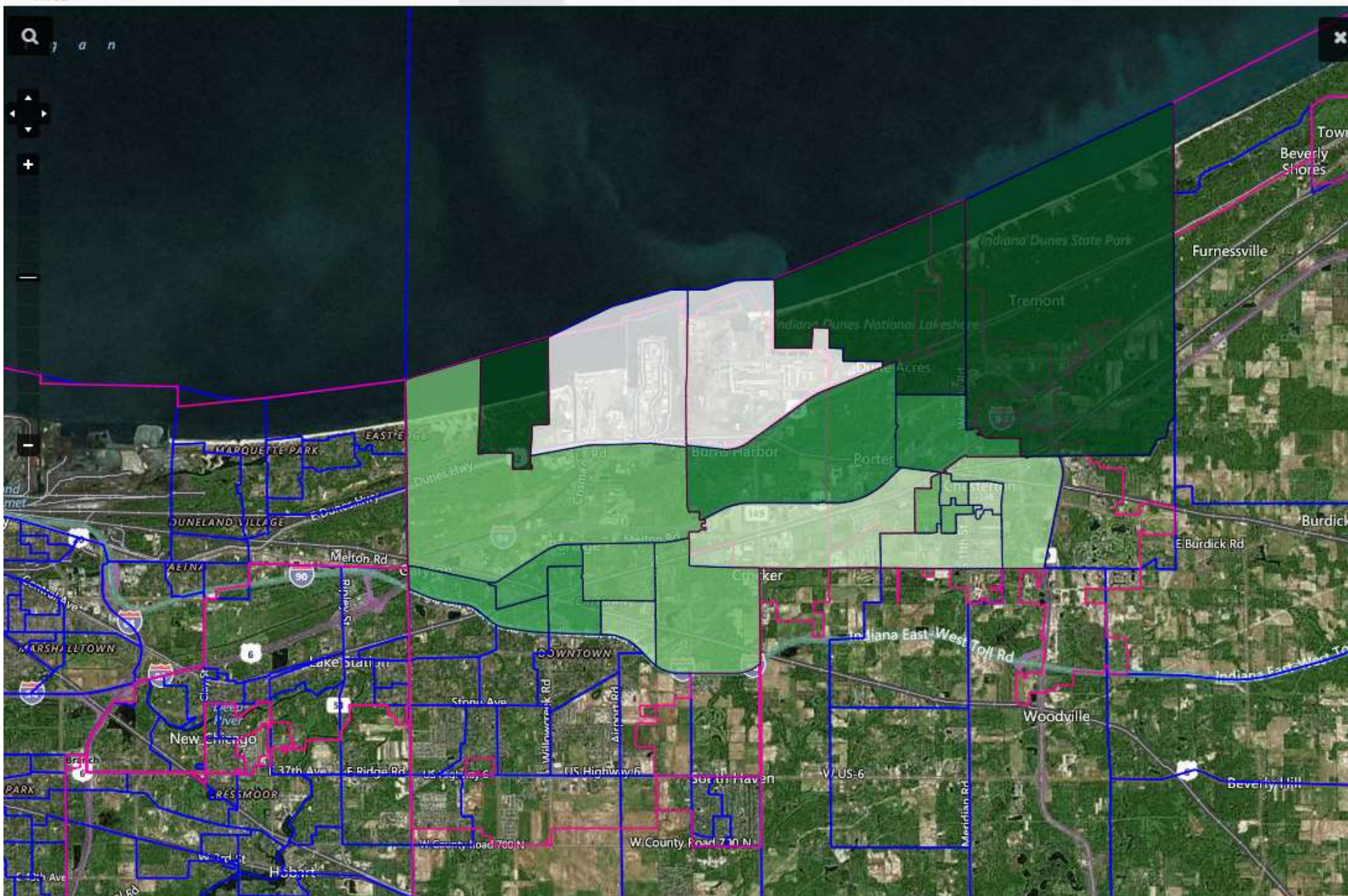
South Haven

Image NOAA  
© 2018 Google









WILDLIFE  
HABITAT  
COUNCIL®

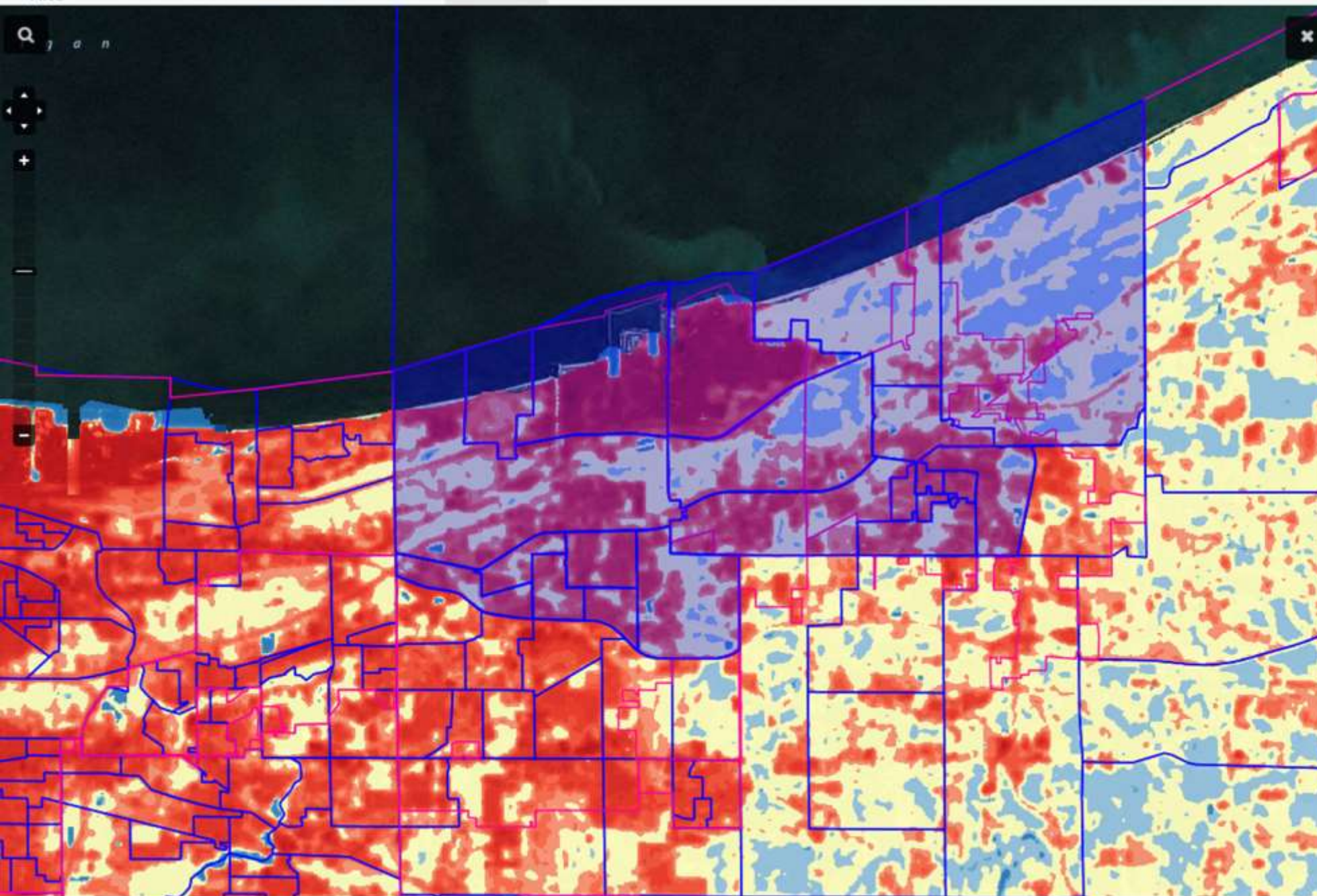
Canopy Legend

Minimum: 8.44  
Maximum: 62.31

min  max

Lighter colors represent lower values, while darker colors represent higher values.





Start on **Main**, then explore the map layer tabs.

Main Canopy & Land Forest Risk Health Risk Future Climate

Air Pollution +

EPA Non-Attainment Areas +

Walkability +

Impaired Waterways +

Projected Urban Development +

Ultraviolet Radiation Index +

Land Surface Temperature -

☒ LST Difference ?



Transparency 5 %

Map details are located in the references.



# PORT OF INDIANA - BURNS HARBOR

6625 S. Boundary Drive • Portage, IN 46368 • (219) 787.8636 • [www.portsofindiana.com](http://www.portsofindiana.com)







758 ft

Google Earth















☀ Builds, owns, and operates efficient waste heat recovery and combined heat and power facilities.

☀ Goal is to reduce host energy costs, emissions, and carbon impact



## 30 Year Outputs

🌳 Carbon Sequestered: 115,067.8 lbs  
(\$2,676.17)

🌳 Avoided runoff: 198,532.4  
(\$1,774.06)

🌳 Pollution ( $O_3$ ,  $NO_2$ ,  $SO_2$ ,  $PM_{2.5}$ )  
removed: 801lbs

## Projected Yearly Outputs

🌳 Pollution Removal: 5.078  
lbs/yr(\$6.92/yr)

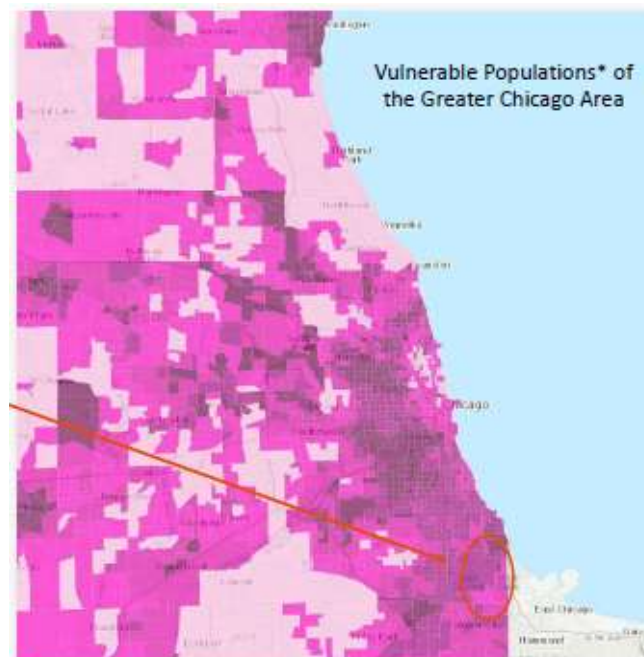
🌳 Carbon Storage: 793.2 lbs

🌳 Carbon Sequestration: 119.5 lbs  
Oxygen Production: 318.7 lbs/yr

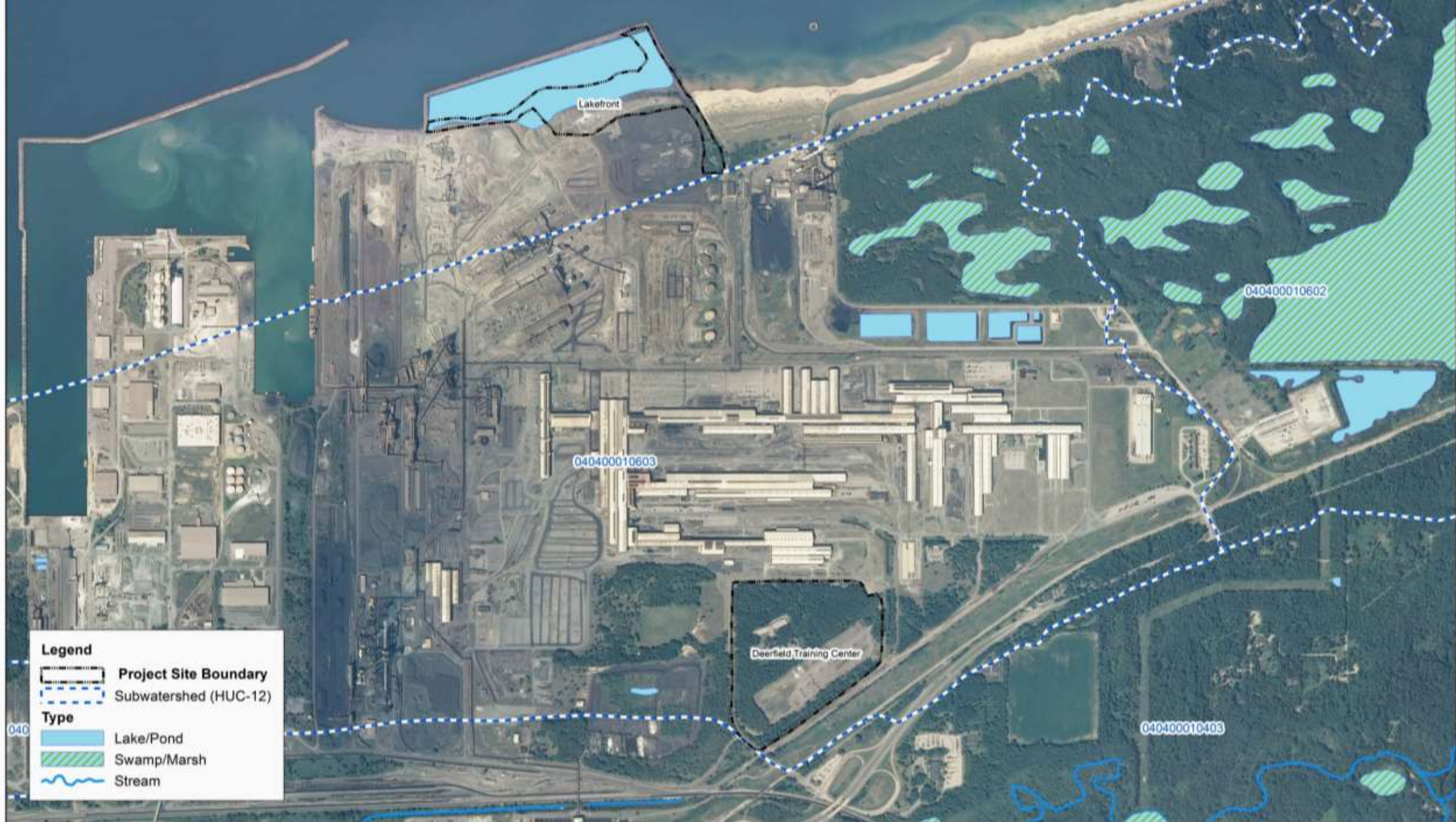
🌳 Avoided Runoff: 38.73  $ft^3$ /yr















Google Earth Aerial of Site







Examples of canopy cover after planting in groves and throughout site: combine shrubs with trees, interspersed so in 2-3 years, the plantings will act as green filters

Light grading needed to allow stormwater runoff into project site

If funding allows, install a wind and hydro sensor with capacity to measure fugitive dust, air temperature, canopy growth

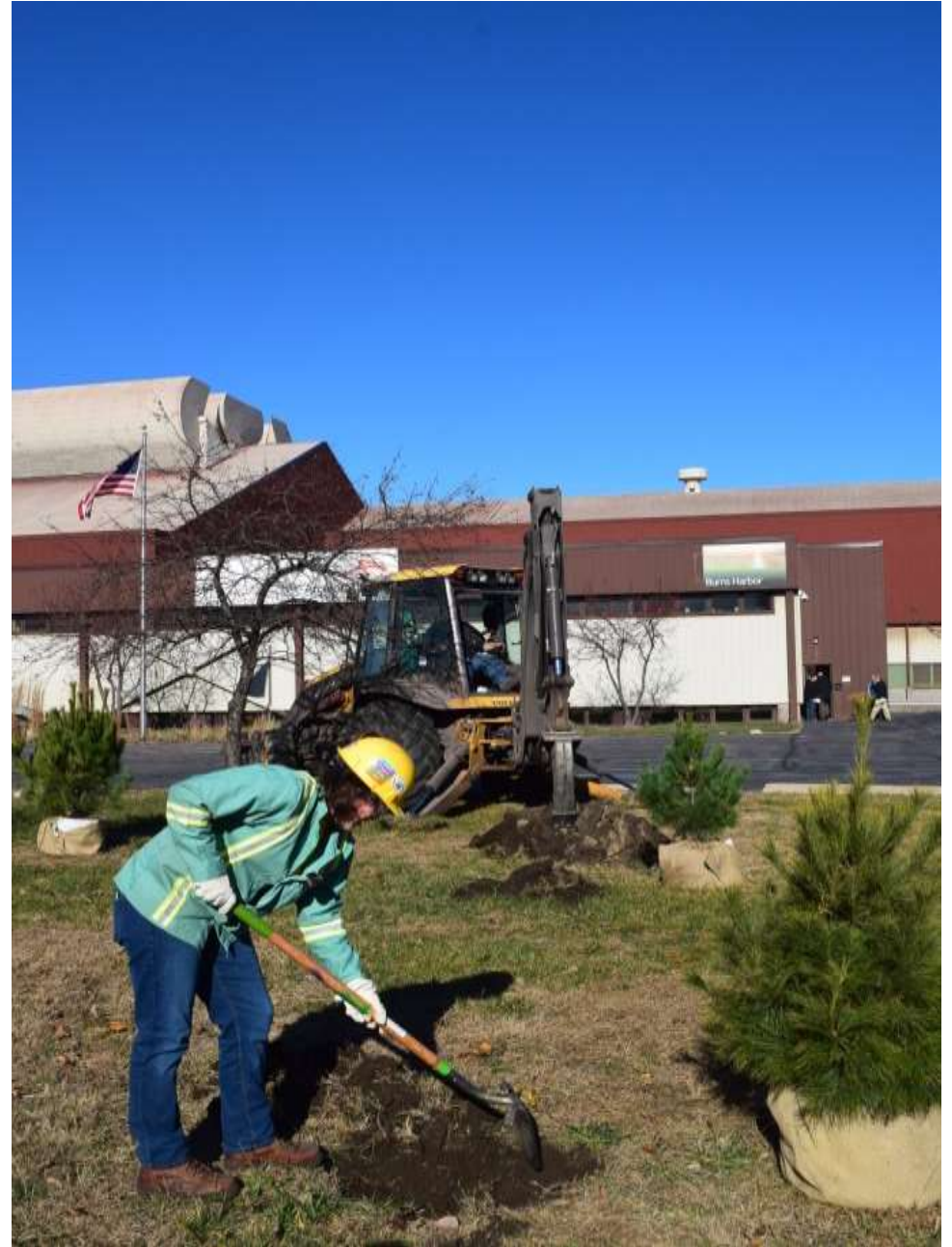
Existing vegetated areas need to be treated for annual and perennial invasive plants, these areas should also be planted



WILDLIFE  
HABITAT  
COUNCIL

Google Earth





















# What are we planting?

Student Conservation Association

NW Indiana Tree Planting with the  
Student Conservation Association



- Native hardwoods

- 1.5-2" caliper
- Local nurseries
  - Woody Warehouse Nursery (Lizton, IN)
  - Possibility Place Nursery (Monee, IL)
- Root-maker bag
- Tree planting considerations
  - Street trees
  - Companion planting





# Working with Schools





# Tree Watering!





# Projected ecosystem services for 710 newly planted trees over 40 years!



## Carbon dioxide

2,645,154 lbs  
sequestered

## Stormwater effects

15,052,690 gallons  
intercepted  
4,485,115 gallons  
managed (*runoff  
avoided*)

## Air Quality

9,845 lbs. of pollutants  
removed



From: Al Zelaya's "Intro to iTree presentation".









Dead Ash tree canopy thinning **NIPSCO ROW**



Late December 2018 native tree planting **Asphalt Operating Services of Chicago**



Late winter prescribed fire on **ArcelorMittal Global R&D dune and swale**



Buckthorn removal and control at **ExxonMobil Hammond Terminal**

- 10,000 Trees and shrubs planted 2016-2020
- 250 acres of industrial lands reclaimed and managed
- Trees watered and focus on management & survival
- Outreach and Stewardship with thousands of people









Thank you! US Forest Service, Gaylord and Dorothy Donnelley Foundation,  
DTE Foundation, Marathon Petroleum Community Foundation, US  
Environmental Protection Agency & Our Member Sponsors!







Patricia Billette  
Sara Cook

**Daniel Goldfarb**  
[dgoldfarb@wildlifehc.org](mailto:dgoldfarb@wildlifehc.org)  
219-448-8773

[www.wildlifehc.org](http://www.wildlifehc.org)

